1946 ✓ (22)

Sperry, R. W. (1946) Restoration of vision after crossing of optic nerves and after contralateral transplantation of eye. *Bio. Abs.* **20(1)**, 724.

Optic nerve regeneration following bilateral cross union of the optic nerves in 21 anuran amphibians and contralateral transplantation of the eye in 2 anuran and in 12 urodele amphibians resulted in recovery of visuomotor coordinations which were intrinsically well organized. The recovered visual ~~forma-~~ functions in their extrinsic relations, however, were diagrammatically correlated with the peripheral rearrangements and hence were quite maladaptive. Readaptation by learning did not occur. Since the intrinsic organization of the restored retinal projection patterns could not be attributed to learning, it must be considered a product of the growth process itself. The experiments thus extend the evidence that reestablishment of retino-central associations is systematically predetermined by growth-regulating factors. The results are consistent with the hypothesis of peripheral regulation of central synaptic associations.

R. W. Sperry.